

Radio Test Report

Report No.: CTA231102009H01

Issued for

Zhejiang Hyxi Technology Co., Ltd.

9-10F, Building 3, Jiuyao Commercial Center, Zhuantang Street, Xihu District, Hangzhou, Zhejiang, China

Product Name: Hyxi DMU

Brand Name: N/A

Model Name: Hyxi DMU WIFI

Series Model(s): N/A

FCC ID: 2BDBN-DMUWFIG1

Test Standard: FCC 47CFR §2.1091

Any reproduction of this document must be done in full. No single part of this document may be reproduced without permission from CTA, all test data presented in this report is only applicable to presented test sample.



Shenzhen CTA Testing Technology Co., Ltd.

Room 106, Building 1, Yibaolai Industrial Park, Qiaotou Community, Fuhai Street, Bao'an District, Shenzhen, China

TEST REPORT

Applicant's Name.....: Zhejiang Hyxi Technology Co., Ltd.

Address.....: 9-10F, Building 3, Jiuyao Commercial Center, Zhuantang Street, Xihu District, Hangzhou, Zhejiang, China

Manufacturer's Name.....: Zhejiang Hyxi Technology Co., Ltd.

Address.....: 9-10F, Building 3, Jiuyao Commercial Center, Zhuantang Street, Xihu District, Hangzhou, Zhejiang, China

Product Description

Product Name.....: Hyxi DMU

Brand Name.....: N/A

Model Name: Hyxi DMU WIFI

Series Model(s).....: N/A

Test Standards.....: FCC 47CFR §2.1091

447498 D01 Interim General RF Exposure Guidance v06

This report shall not be reproduced except in full, without the written approval of CTA, this document only be altered or revised by CTA, personal only, and shall be noted in the revision of the document.

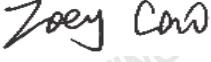
Date of Test.....:

Date of receipt of test item.....: 20 Oct. 2023

Date (s) of performance of tests.....: 20 Oct. 2023 ~ 30 Oct. 2023

Date of Issue.....: 30 Oct. 2023

Test Result.....: Pass

Testing Engineer : 

(Zoey Cao)

Technical Manager : 

(Amy Wen)

Authorized Signatory : 

(Eric Wang)

TABLE OF CONTENTS

| | |
|---|----------|
| 1. GENERAL INFORMATION | 5 |
| 1.1 GENERAL DESCRIPTION OF THE EUT | 5 |
| 1.2 TEST FACTORY | 6 |
| 2. FCC 47CFR §2.1091 REQUIREMENT | 7 |
| 2.1 TEST STANDARDS | 7 |
| 2.2 LIMIT | 7 |
| 2.3 TEST RESULT | 8 |

Revision History

| Rev. | Issue Date | Report No. | Effect Page | Contents |
|------|--------------|-----------------|-------------|---------------|
| 00 | 30 Oct. 2023 | CTA231102009H01 | ALL | Initial Issue |
| | | | | |

1. GENERAL INFORMATION

1.1 GENERAL DESCRIPTION OF THE EUT

| | | | | | | | | | | | | | | | | | | | | | |
|----------------------|---|----------------------|---------------------|--|-------------------------------|--|-----------------------------|------------------|-----|--|-------------------------------|--|---------------------------------------|--|---------------------------------------|---------------|-------------------|--|--------------------|----------------------|--|
| Product Name | Hyxi DMU | | | | | | | | | | | | | | | | | | | | |
| Brand Name | N/A | | | | | | | | | | | | | | | | | | | | |
| Model Name | Hyxi DMU WIFI | | | | | | | | | | | | | | | | | | | | |
| Series Model(s) | N/A | | | | | | | | | | | | | | | | | | | | |
| Model Difference | N/A | | | | | | | | | | | | | | | | | | | | |
| Product Description | <p>The EUT is Hyxi DMU</p> <table border="1"><tr><td>Operation Frequency:</td><td>433.35MHz-434.6 MHz</td></tr><tr><td></td><td>802.11b/g/n 20: 2412~2462 MHz</td></tr><tr><td></td><td>802.11n(40MHz):2422~2452MHz</td></tr><tr><td>Modulation Type:</td><td>FSK</td></tr><tr><td></td><td>802.11b(DSSS):CCK,DQPSK,DBPSK</td></tr><tr><td></td><td>802.11g(OFDM):BPSK,QPSK,16-QAM,64-QAM</td></tr><tr><td></td><td>802.11n(OFDM):BPSK,QPSK,16-QAM,64-QAM</td></tr><tr><td>Antenna gain:</td><td>2.4G WIFI:3.3 dBi</td></tr><tr><td></td><td>433.35MHz: 0.5 dBi</td></tr><tr><td>Antenna Designation:</td><td>433.35MHz:Spring Antenna 2.4G WIFI: PCB Antenna</td></tr></table> | Operation Frequency: | 433.35MHz-434.6 MHz | | 802.11b/g/n 20: 2412~2462 MHz | | 802.11n(40MHz):2422~2452MHz | Modulation Type: | FSK | | 802.11b(DSSS):CCK,DQPSK,DBPSK | | 802.11g(OFDM):BPSK,QPSK,16-QAM,64-QAM | | 802.11n(OFDM):BPSK,QPSK,16-QAM,64-QAM | Antenna gain: | 2.4G WIFI:3.3 dBi | | 433.35MHz: 0.5 dBi | Antenna Designation: | 433.35MHz:Spring Antenna 2.4G WIFI: PCB Antenna |
| Operation Frequency: | 433.35MHz-434.6 MHz | | | | | | | | | | | | | | | | | | | | |
| | 802.11b/g/n 20: 2412~2462 MHz | | | | | | | | | | | | | | | | | | | | |
| | 802.11n(40MHz):2422~2452MHz | | | | | | | | | | | | | | | | | | | | |
| Modulation Type: | FSK | | | | | | | | | | | | | | | | | | | | |
| | 802.11b(DSSS):CCK,DQPSK,DBPSK | | | | | | | | | | | | | | | | | | | | |
| | 802.11g(OFDM):BPSK,QPSK,16-QAM,64-QAM | | | | | | | | | | | | | | | | | | | | |
| | 802.11n(OFDM):BPSK,QPSK,16-QAM,64-QAM | | | | | | | | | | | | | | | | | | | | |
| Antenna gain: | 2.4G WIFI:3.3 dBi | | | | | | | | | | | | | | | | | | | | |
| | 433.35MHz: 0.5 dBi | | | | | | | | | | | | | | | | | | | | |
| Antenna Designation: | 433.35MHz:Spring Antenna 2.4G WIFI: PCB Antenna | | | | | | | | | | | | | | | | | | | | |
| Power Rating | Input: AC 100~240V, 50/60Hz Output: DC 12V/1A | | | | | | | | | | | | | | | | | | | | |
| Hardware Version | V1.0 | | | | | | | | | | | | | | | | | | | | |
| Software Version | V01.00.02 | | | | | | | | | | | | | | | | | | | | |

1.2 TEST FACTORY

Shenzhen CTA Testing Technology Co., Ltd.

Room 106, Building 1, Yibaolai Industrial Park, Qiaotou Community, Fuhai Street, Bao'an District, Shenzhen, China

FCC test Firm Registration Number: 517856

IC test Firm Registration Number: 27890

A2LA Certificate No.: 6534.01

IC CAB ID: CN0127

2. FCC 47CFR §2.1091 REQUIREMENT

2.1 TEST STANDARDS

The limit for Maximum Permissible Exposure (MPE) specified in FCC 1.1310 is followed. The gain of the antennas used in the product is extracted from the Antenna data sheets provided and also the maximum total power input to the antenna is measured. Through the Friis transmission formula and the maximum gain of the antenna, we can calculate the distance, away from the product, where the limit of MPE is reached.

Although the Friis Transmission formula is far field assumption, the calculated result of that is an over-prediction for near field power density. It is taken as worst case to specify the safety range.

2.2 LIMIT

According to FCC 1.1310: The criteria listed in the following table shall be used to evaluate the environmental impact of the human exposure to radio-frequency (RF) radiation as specified in 1.1307 (b)

Limits for Maximum Permissible Exposure (MPE)

| Frequency Range (MHz) | Electric Field Strength (V/m) | Magnetic Field Strength (A/m) | Power Density (mW/cm ²) |
|---|----------------------------------|----------------------------------|--|
| Limits for Occupational / controlled Exposures | | | |
| 300 - 1500 | -- | -- | F/300 |
| 1500 – 100000 | -- | -- | 5.0 |
| Limits for General population / Uncontrolled Exposure | | | |
| 300 - 1500 | -- | -- | F/1500 |
| 1500 – 100000 | -- | -- | 1.0 |

F= Frequency in MHz

Friis Formula

Friis Transmission Formula: $P_d = (P_{out} * G) / (4 * \pi * r^2)$

Where

P_d = power density in mW/cm²

P_{out} = output power to antenna in mW

G = gain of antenna in linear scale

π = 3.1416

R = Distance between observation point and the center of radiator in cm

If we know the maximum gain of the antenna and the total output power to the antenna, through calculation, we will know MPE value at distance 20cm.

2.3 TEST RESULT

Turn up

| Mode | Detector | Turn up Power |
|-----------|----------|---------------|
| SRD | AV | -51±1dBm |
| 2.4G WLAN | AV | 10±1dBm |

| Protocol | Fre. (GHz) | Separation distance (cm) | Max Turn up power (dBm) | ANT Gain (dBi) | Max EIRP (dBm) | Max ERP (dBm) | Max EIRP (W) | Limit (W) | Ratio | Result |
|-----------|------------|--------------------------|-------------------------|----------------|----------------|---------------|--------------|-----------|------------|--------|
| SRD | 0.43335 | 20 | -50 | 0.5 | -49.5 | -51.65 | 0.00000001 | 0.2219 | 0.00000003 | Pass |
| 2.4G WLAN | 2.462 | 20 | 11 | 3.3 | 14.3 | 12.15 | 0.016 | 0.7680 | 0.02136185 | Pass |

Multiple transmission:

$$\text{SRD+WLAN}=0.00000003+0.0214=0.02136188<1$$

Note: 1. The Maximum power is less than the limit, complies with the exemption requirements.

2. ERP = EIRP - 2.15

*****END OF THE REPORT*****